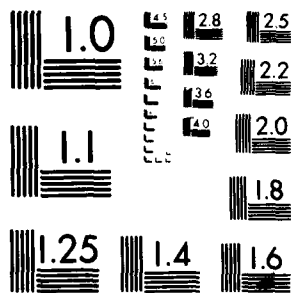


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20. ABSTRACT This is the Soviet Laser Bibliography for March-April 1977 and is No. 28 in a continuing series on Soviet laser developments. The coverage includes basic research on solid state, liquid, gas, and chemical lasers; components; nonlinear optics; spectroscopy of laser materials; ultrashort pulse generation; theoretical aspects of advanced lasers; and general laser theory. Laser applications are listed under biological effects; communications; beam propagation; computer technology; holography; laser-induced chemical reactions; measurement of laser parameters; laser measurement applications; laser-excited optical effects; beam-target interaction; and plasma generation and diagnostics.		

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### Introduction

This bibliography has been compiled under an interagency agreement as a continuing effort to document current Soviet-bloc developments in the quantum electronics field. The period covered is March-April 1977, and includes all significant laser-related articles received by us in that interval. The bulk of the entries come from the approximately 30 periodicals which are known to publish the most significant findings in Soviet laser technology. Citations from the Russian Reference Journals are included, as well as entries from the CIRC data base not otherwise covered. Laser items from the popular or semipopular press are generally omitted.

Section IIG, Instrumentation and Measurement, has been removed and made into separate categories: Section IIG, Measurement of Laser Parameters, and Section IIH, Laser Measurement Applications, with subsections on Direct Measurement by Laser, and Laser-Excited Optical Effects. The section titled, "Translations," lists currently available translations of laser articles.

For convenience we have abbreviated frequently cited source names; a source abbreviations list and an author index are included. All sources cited with no parenthetical notation are available at the Library of Congress. A parenthetical entry (RZh, KL) indicates the secondary source in which the citation was found as a bibliographic entry or abstract, but for which the original source is not currently available at the Library. The authors' affiliations are indicated by the numbers in parentheses following the authors' names in the text and are listed in the Author Affiliations List. New affiliations are assigned a new number and are added to a cumulative list which includes all affiliations from 1969 to the present. Only those affiliations which appear in this issue are listed in this issue's Author Affiliations List.

# SOVIET LASER BIBLIOGRAPHY, MARCH - APRIL 1977

## TABLE OF CONTENTS

### I. BASIC RESEARCH

#### A. Solid State Lasers

1. Crystal: Ruby .....	1
2. Crystal: Rare-Earth Activated	
a. Nd <sup>3+</sup> .....	1
b. La <sup>3+</sup> .....	2
3. Crystal: Miscellaneous .....	2
4. Semiconductor: Simple Junction	
a. PbSe .....	3
5. Semiconductor: Mixed Junction .....	3
6. Semiconductor: Heterojunction .....	3
7. Semiconductor: Theory .....	4
8. Glass: Nd .....	4
9. Glass: Li-Nd-La .....	4
10. Glass: Miscellaneous .....	5

#### B. Liquid Lasers

1. Organic Dyes	
a. Rhodamine .....	5
b. Miscellaneous Dyes .....	5

#### C. Gas Lasers

1. Simple Mixtures	
a. He-Ne .....	5
b. He-Ar .....	6
2. Molecular Beam and Ion	
a. CO <sub>2</sub> .....	7
b. CO .....	9
c. Ar .....	10
d. N <sub>2</sub> .....	10
e. Submillimeter .....	11
f. Metal Vapor .....	11
g. Gasdynamic .....	12

3.	Theory .....	13
D.	Chemical Lasers	
1.	$F_2 + H_2(D_2)$ .....	14
2.	Photodissociative .....	14
E.	Components	
1.	Resonators .....	15
2.	Pump Sources .....	15
3.	Deflectors .....	16
4.	Focusers .....	16
5.	Amplifiers .....	16
6.	Windows .....	16
7.	Filters .....	17
8.	Mirrors .....	17
9.	Detectors .....	17
10.	Modulators .....	18
F.	Nonlinear Optics	
1.	Frequency Conversion .....	19
2.	Parametric Processes .....	21
3.	Stimulated Scattering	
a.	Raman .....	21
b.	Brillouin .....	23
c.	Miscellaneous Scattering .....	23
4.	Self-focusing .....	23
5.	Acoustic Interaction .....	24
6.	General Theory .....	24
G.	Spectroscopy of Laser Materials .....	25
H.	Ultrashort Pulse Generation .....	25
J.	Theoretical Aspects of Advanced Lasers .....	25
K.	General Laser Theory .....	26



II.	LASER APPLICATIONS	
A.	Biological Effects .....	28
B.	Communications Systems .....	29
C.	Beam Propagation	
1.	In the Atmosphere .....	31
2.	In Liquids .....	32
3.	Theory .....	33
D.	Computer Technology .....	33
E.	Holography .....	35
F.	Laser-Induced Chemical Reactions .....	40
G.	Measurement of Laser Parameters .....	43
H.	Laser Measurement Applications	
1.	Direct Measurement by Laser .....	45
2.	Laser-Excited Optical Effects .....	51
J.	Beam-Target Interaction	
1.	Metal Targets .....	56
2.	Dielectric Targets .....	57
3.	Semiconductor Targets .....	58
4.	Miscellaneous Studies .....	58
K.	Plasma Generation and Diagnostics .....	59
III.	MONOGRAPHS, BOOKS, CONFERENCE PROCEEDINGS .....	64
IV.	TRANSLATIONS .....	66
V.	SOURCE ABBREVIATIONS .....	69
VI.	AUTHOR AFFILIATIONS .....	72
VII.	AUTHOR INDEX .....	75

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G. MEASUREMENT OF LASER PARAMETERS

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J. BEAM-TARGET INTERACTION

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#### IV. TRANSLATIONS

##### A. COMMERCIAL TRANSLATIONS

A number of Soviet journals which contain articles on laser research are routinely translated cover-to-cover by commercial firms. These are generally available from four to twelve months after the original Russian publication appears. The bulk of such translated laser articles will be found in the following journals:

<u>Journal abbreviation</u>	<u>Transliterated title</u>	<u>English translation</u>
FAiO	Akademiya nauk SSSR. Fizika atmosfery i okeana	Izvestiya, Atmospheric and Oceanographic Physics
FTP	Fizika i tekhnika poluprovodnikov	Soviet Physics--Semiconductors
---	Fizika plazmy	Soviet Journal of Plasma Physics
FTT	Fizika tverdogo tela	Soviet Physics--Solid State
IT	Izmeritel'naya tekhnika	Measurement Techniques
IVUZ Radiofiz	Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika	Radio Physics and Quantum Electronics
KSpF	Kratkiye soobshcheniya po fizike	Soviet Physics. Lebedev Institute Reports
NM	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy	Inorganic Materials
OiS	Optika i spektroskopiya	Optics and Spectroscopy
OMP	Optiko-mekhanicheskaya promyshlennost'	Soviet Journal of Optical Technology

<u>Journal abbreviation</u>	<u>Transliterated title</u>	<u>English translation</u>
PTE	Pribory i tekhnika eksperimenta	Instruments and Experimental Techniques
RiE	Radiotekhnika i elektronika	Radio Engineering and Electronic Physics
TVT	Teplofizika vysokikh temperatur	High Temperature Physics
UFN	Uspekhi fizicheskikh nauk	Soviet Physics--Uspekhi
ZhETF	Zhurnal eksperimental'noy i tekhnicheskoy fiziki	Soviet Physics--JETP
ZhETF P	Pis'ma v zhurnal eksperimental'noy i tekhnicheskoy fiziki	JETP Letters
ZhPMTF	Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki	Journal of Applied mechanics and Technical Physics
ZhPS	Zhurnal prikladnoy spektroskopii	Journal of Applied Spectroscopy
ZhTF	Zhurnal tekhnicheskoy fiziki	Soviet Physics--Technical Physics
ZhTF P	Pis'ma v zhurnal tekhnicheskoy fiziki	Soviet Technical Physics Letters

#### B. MISCELLANEOUS TRANSLATIONS

A number of laser books and articles in Russian are translated independently by private or government activities and can be obtained from these sources. It should be noted, however, that because of copyright restrictions, not all government-sponsored translations are available to the general public.

The following is a partial list of laser translations for the current interval.

Velichko, O.A. State of the art survey of cw laser welding. Avtomaticheskaya svarka, Kiyev, no.5, 1977, 44-50. JPRS, no. L/7477, 1977, 18-29.

Velichko, O.A. Rapid laser welding of thin-sheet nickel. Avtomaticheskaya svarka, Kiyev, no.4, 1977, 69-70. JPRS, no. L/7477, 1977, 30-32.

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Kolomenskiy, A.A. and A.N. Lebedev. Forced undulatory radiation of relativistic electrons and physical processes on an 'electron' laser. Vynuzhdennoye ondulyatornoye izlucheniye relyativistskikh elektronov i fizicheskiye protsessy v 'elektronnon lazere', Russian Preprint, no. 127, 1977, 1-23. JPRS 70250, no. 24, 1977, 35-49.

Volkovitskiy, O.A. Experimental investigation of the influence of radiation of CO<sub>2</sub> lasers on a droplet cloud medium. Meteorologiya i gidrologiya, no. 9, 1977, 12-23. JPRS L/7490, no. 9, 1977, 13-27.

BWAT	-	Biuletyn Wojskowej akademii technicznej J. Dabrowskiego
DAN SSSR	-	Akademiya nauk SSSR. . klady
FA10	-	Akademiya nauk SSSR. Izvestiya. Fizika atmosfery i okeana
FD1R	-	Fizyka dielektrykow i radiospektroskopia. Prace Komisji matematyczno-przyrodniczej Poznanskie towarzystwo przyjaciol nauk
FG1V	-	Fizika gorenija i vzryva
FIKhOM	-	Fizika i khimiya obrabotka materialov
FKhMM	-	Fiziko-khimicheskaya mekhanika materialov
FTP	-	Fizika i tekhnika poluprovodnikov
FTT	-	Fizika tverdogo tela
IAN Arm	-	Akademiya nauk Armyanskoy SSR. Izvestiya. Fizika
IAN B	-	Akademiya nauk Belorusskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk
IAN Fiz	-	Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya
IAN Lat	-	Akademiya nauk Latviyskoy SSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk
IAN Mold	-	Akademiya nauk Moldavskoy SSR. Izvestiya
IAN Uz	-	Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk
IT	-	Izmeritel'naya tekhnika
IVUZ Fiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Fizika
IVUZ Geod	-	Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka
IVUZ Mash	-	Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye
IVUZ Priboro	-	Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye
IVUZ Radiofiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika

KE	-	Kvantovaya elektronika
KhVE	-	Khimiya vysokikh energi
KLDV	-	Knizhnaya letopis'. Dopolnitel'nyy vypusk
KSpF	-	Kratkiye soobshcheniya po fizike
MZhIG	-	Akademiya nauk SSSR. Izvestiya. Mekhanika zhidkosti i gaza
NM	-	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy
OIS	-	Optika i spektroskopiya
OMP	-	Optiko-mekhanicheskaya promyshlennost'
Otkr izobr	-	Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki
PTE	-	Pribory i tekhnika eksperimenta
RBL	-	Russian Book List
RiE	-	Radiotekhnika i elektronika
RZhF	-	Referativnyy zhurnal. Fizika
RZhGeofiz	-	Referativnyy zhurnal. Geofizika
RZhMekh	-	Referativnyy zhurnal. Mekhanika
RZhMetrolog	-	Referativnyy zhurnal. Metrologiya i izmeritel'naya tekhnika
RZhRadiot	-	Referativnyy zhurnal. Radiotekhnika
Sb1	-	Sbornik. Gazovyye lazery. Novosibirsk, Nauka, 1977.
Sb2	-	Nauchnaya konferentsiya aspirantov i molodykh uchenykh. Sektsiya fizicheskikh nauk. Materialy. Uzhgorod universitet, 1976.
Sb3	-	TsAGI [Tsentral'nyy aero-gidrodinamicheskiy institut]. Uchenyye zapiski, no. 2, 1976.
Sb4	-	Vsesoyuznyy gidrologicheskiy s"yezd. 4th. Trudy. Gidrofizika, no. 6, Leningrad, 1976.
Sb5	-	TsAGI. Uchenyye zapiski, no. 4, 1976.
Sb6	-	TsAGI. Uchenyye zapiski, no. 5, 1976.
Sb7	-	TsAGI. Uchenyye zapiski, no. 6, 1976.

TKiT	-	Tekhnika kino i televideniya
Tr1	-	Trudy metrologicheskikh institutov SSSR. VNII metrologii, no. 199(259), 1976.
Tr2	-	Leningradskiy tekhnicheskoy institut. Izvestiya, no. 194, 1976.
Tr3	-	Moskovskiy energeticheskoy institut. Trudy, no. 295, 1976.
Tr4	-	Moskovskiy energeticheskoy institut. Trudy, no. 301, 1976.
Tr5	-	Tsentral'nyy aero-gidrodinamicheskoy institut. Trudy, no. 1755, 1976.
Tr6	-	VNII fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy. Trudy, no. 28(58), 1976.
Tr7	-	Moskovskiy avtomobil'no-dorozhnyy institut. Trudy, no. 121, 1976.
TVT	-	Teplofizika vysokikh temperatur
UFN	-	Uspekhi fizicheskikh nauk
UFZh	-	Ukrainskiy fizicheskoy zhurnal
VAN SSSR	-	Akademiya nauk SSSR. Vestnik
VMU	-	Moskovskiy universitet. Vestnik. Seriya fizika, astronomiya
ZhETF	-	Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhETF P	-	Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhFKh	-	Zhurnal fizicheskoy khimii
ZhNIPFIK	-	Zhurnal nauchnoy i prikladnoy fotografii i kinematografii
ZhPMTF	-	Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki
ZhPS	-	Zhurnal prikladnoy spektroskopii
ZhTF	-	Zhurnal tekhnicheskoy fiziki
ZhTF P	-	Pis'ma v Zhurnal tekhnicheskoy fiziki
ZL	-	Zavodskaya laboratoriya



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51. Kiev State University (Kiyevskiy gos universitet).
63. Institute of Physics, AN LatSSR (Institut fiziki AN LatSSR).
64. Institute of Atmospheric Physics, AN SSSR (Institut fiziki atmosfery AN SSSR).
66. Institute of Solid State Physics, AN SSSR (Institut fiziki tverdogo tela AN SSSR).
67. Institute of Physics of Chemistry, AN SSSR (Institut khimicheskoy fiziki AN SSSR).

71. Institute of Applied Mathematics, AN SSSR (Institut prikladnoy matematiki AN SSSR).
72. Institute of Spectroscopy, AN SSSR (Institut spektroskopii AN SSSR).
73. Institute of Theoretical Physics im Landau, AN SSSR (Institut teoreticheskoy fiziki im Landau AN SSSR).
74. Institute of High Temperatures, AN SSSR (Institut vysokikh temperatur AN SSSR).
75. Institute of Automation and Electronic Measurements, Siberian Branch AN SSSR (Institut avtomatiki i elektrometrii SOAN).
77. Institute of Inorganic Chemistry, Siberian Branch AN SSSR (Institut neorganicheskoy khimii SOAN).
78. Institute of Atmospheric Optics, Siberian Branch AN SSSR (Institut optiki atmosfery SOAN).
82. Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR).
85. Institute of Nuclear Physics, AN UzSSR (Institut yadernoy fiziki AN UzSSR).
87. Belorussian State University (Belorusskiy gos universitet).
90. Electrotechnical Institute of Communications (Elektrotekhnicheskiy institut svyazi).
92. Physicochemical Institute im Karpov (Fiziko-khimicheskiy institut im Karpova).
94. Gor'kiy State University (Gor'kovskiy gos universitet).
98. Institute of Nuclear Physics at Moscow State University (Institut yadernoy fiziki pri Moskovskom gos universitete).
99. Institute of Mechanics and Physics, Saratov (Institut mekhaniki i fiziki).
100. Institute of Oncology im Petrov (Institut onkologii im Petrova).
109. Latvian State University (Latviyskiy gos universitet).
110. Leningrad Electrotechnical Institute (Leningradskiy elektrotekhnicheskiy institut).
120. Moscow Institute of Engineers of Geodesy, Aerial Photography and Cartography (Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii).
122. Scientific Research Institute of Physicochemistry im Karpov (NI fiziko-khimicheskiy institut im Karpova).
133. Central Aerohydrodynamic Institute im Zhukovskiy (Tsentral'nyy aerogidrodinamicheskiy institut im Zhukovskogo).
134. Central Aerological Observatory (Tsentral'naya aerologicheskaya observatoriya).
135. Central Scientific Research Institute of Communications (Tsentral'nyy NII svyazi).
136. Uzhgorod State University (Uzhgorodskiy gos universitet).
137. Voronezh State University (Voronezhskiy gos universitet).
139. All Union Electrotechnical Institute (Vsesoyuznyy elektrotekhnicheskiy institut).
140. All Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements (VNII fiziko-tekhnicheskikh i radio-tekhnicheskikh izmereniy, VNIFTRI).
141. All Union Scientific Research Institute of Opticophysical Measurements (VNII optiko-fizicheskikh izmereniy).
147. Moscow Highway Institute (Moskovskiy avtodorozhnyy institut).
151. Kishinev State University (Kishinevskiy gos universitet).
161. Moscow Institute of Radio Engineering, Electronics and Automation (Moskovskiy institut radiotekhniki, elektroniki i avtomatiki).
163. All Union Scientific Research Institute of Metrology im Mendeleyev (VNII metrologii im Mendeleyeva).
175. Arctic and Antarctic Scientific Research Institute, Leningrad (Arkticheskiy i antarkticheskiy NII).

177. Riga Institute for Civil Aviation Engineers (Rizhskiy institut inzhenerov grazhdanskoy aviatsii).
179. Moscow Institute of Fine Chemical Technology im Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii im Lomonosova)
184. Institute of Geochemistry and Analytical Chemistry im Vernadskiy, AN SSSR, Moscow (Institut geokhimii i analiticheskoy khimii im Vernadskogo AN SSSR).
188. All Union Scientific Research Institute of Single Crystals, Khar'kov (VNII monokristallov).
193. Institute of Theoretical and Applied Mechanics, Siberian Branch, AN SSSR, Novosibirsk (Institut teoreticheskoy i prikladnoy mekhaniki SOAN).
210. Institute of Physics, Siberian Branch, AN SSSR (Institut fiziki SOAN).
227. Tashkent State University (Tashkentskiy gos universitet).
231. Scientific Research Institute of Motion Pictures and Photography (NI kinofotoinstitut).
252. Leningrad Institute of Nuclear Physics, AN SSSR (Leningradskiy institut yadernoy fiziki AN SSSR).
255. Tallinn Polytechnical Institute (Tallinskiy politekhnicheskoy institut).
262. Physicotechnical Institute, AN UzSSR (Fiziko-tekhnicheskoy institut AN UzSSR).
297. Institute of Chemistry, AN SSSR, Gor'kiy (Institut khimii AN SSSR).
299. Institute of Electronics, AN BSSR (Institut elektroniki AN BSSR).
303. L'vov Branch of Mathematical Physics of the Institute of Mathematics AN UkrSSR (L'vovskiy filial matematicheskoy fiziki Instituta matematiki AN UkrSSR).
306. State Oceanographic Institute (Gosudarstvennyy okeanograficheskoy institut).
325. Scientific Research Institute of Physics, Rostov-on-Don (NII fiziki, Rostov-na-Donu).
335. Institute of Electrochemistry, AN SSSR (Institut elektrokhimii AN SSSR).
362. Leningrad Pedagogical Institute (Leningradskiy pedagogicheskoy institut).
412. Central Design Bureau for Information Engineering, Vinnitsa (Tsentral'noye konstruktorskoye byuro informatsionnoy tekhniki).
414. Institut of Technical Cybernetics, AN BSSR (Institut tekhnicheskoy kibernetiki AN BSSR).
415. Kishinev Polytechnic Institute (Kishinevskiy politekhnicheskoy institut).
416. Perm' State University (Permskiy gos universitet).
417. All Union Scientific Research Institute of Eye Diseases (VNII glaznykh bolezney).
419. Central Scientific Research and Design Institute of Fuel Systems for Tractor and Stationary Engines, Leningrad (Tsentral'nyy NI i konstruktorskiy institut toplivnoy apparatury avtotraktornykh i statsionarnykh dvigateley).

# VII. AUTHOR INDEX

A		ANISIMOV V YA		BARCHUKOV A I		BLETSKAN D I	
ABDULLAYEV A	51	ANISTRATOV A T	19	BARINOVA YE S	40	BLINOVSKAYA YE M	38
ABDUMALIKOV A A	26	ANTIPENKO B M	19	BARKAN I B	35, 52	BLOKHIN V I	46, 47
ABRAMOV L I	45, 46	ANTONOV A V	31	BASIYEV I T	51	BOBOVICH YA S	7
ABRAMOV O I	31	APANASEVICH P A	25	BASKAKOV O I	11	BOBOVICH B D	22
ABROSIMOV G V	11, 12	ARIFOV U A	56	BASKAKOV V K	46	BOBOV S T	14, 15
AFONIN A A	2	ARMER A G	12	BASOV N G	9, 14,	BOGDANOV S V	37
AFONIN YU V	7	ARSLANBEKOV T U	26	BASOV YU G	40	BOGDANOV S V	24
AGAFONOV V G	51	ARTAMONOV A V	7	BASOVA T A	12	BOGORODSKIY M M	17
AGEYEV A N	31	ARZUMANOV V N	1	BATENIN V M	52	BOGORODSKIY V V	47
AGEYEV B G	18	ASKAR'YAN G A	51	BATYGINA A I	60	BOKSER V D	47
AGEYEV V A	51	AVANESYAN O S	21	BELABAYEV K G	43	BONDAREV A S	56, 58
AGEYEV V P	59	AVATKOV O N	7	BELABAYEV K G	33	BONDAREV A S	4
AKAYEV A	33	AVDIYENKO K I	24	BELAVIN V A	12	BORISEVICH N A	47
AKCHURIN G G	13	AVERBAKH V S	21	BELEN'KIY M S	31	BORISOV V M	7
AKHMANOV S A	21	AVRAMENKO R F	51	BELEN'KIY M S	12	BORODAVKA V P	43
AKOPYAN V S	28, 29	AVROV A I	59	BELEN'KIY M S	40	BOROWIECKI W	61
ALEKSANDROV K S	19	AYRAPET'YAN V N	57	BELEN'KIY M S	57	BORSHCH A A	23, 36
ALENTSEV B M	43	AYRAPET'YAN YU N	57	BELEN'KIY M S	41	BORTKEVICH A V	22
ALFEROV ZH I	3	AZARKEVICH YE I	15	BELOKON' M V	7	BORZA D N	47
ALIMOV O K	51			BELOKON' M V	52	BORZUNOV N G	43
ALIYEV YU M	59			BELOUSOVA I M	15	BORZYAK P G	36
ALKHIMOV A P	46			BELOUSOVA I M	29	BOYKO V A	56, 60
ALPATOVA N M	42			BELOZEROV S A	57	BOYTENKO A YE	15
AL'TSHULER G V	4			BEL'YUGOV V N	15	BOZHKOV A I	24
ALUKER E D	51			BENCZE GY L	35	BREKHOVSKIKH G L	22
ALYAB'YEV B V	29			BENDA O	33	BRIKENSHTYEN V KH	21
AMBARTSUMYAN R V	40			BENDERSKIY V A	21	BRITOV A D	3, 4
AMIROV YU YA	51			BERENBERG V A	2	BRODIN M S	23, 36
ANAN'YEVA Z A	46			BERESTNEV S P	33	BROUDE V L	21
ANDREYEV A V	25			BEREZIN V M	24	BRUNNER W	64
ANDREYEV S A	19			BEREZOVSKIY V V	60	BRYUKHNEVICH G I	17
ANDREYEV V M	51			BESPALOV V I	36	BUCHENKOV V A	4
ANDRIYESH A M	29			BETEROV I M	19	BUCHAROV I	32
ANDRONOV G A	12			BETIN A A	36	BUGAYEV S P	7
ANDRZEJEWSKI N	16			BIALYNICKA-RIRULA Z	13	BUKKER YU M	30
'NIKEYEVA N V	43			BIRGER YE M	36	BULGAKOV B M	18
				BIRYUKOV A S	12	BUNKIN F V	24, 59
				BLASHCHUK V N	23	BURNASHEV M N	52
				BLASZCZAK Z	52	BURSHTEYN A I	13

BUTOWTT J	30	CSOMOR R	13	DUDAREV I A	5	FILIPPOV P G	21
BYCHENOV V YU	59	CZARNECKI P	52	DUKAREVICH YU YE	34	FIRTSAK YU YU	58
BYCHKOV YU I	7,8,10			DUNITRAS D C	8	POFANOV YA A	52
BYKOV M M	18	D		DUTU D C	8	FOMIN N A	9,12
BYROVSKIY YU A	29,52,			DUVANOV B N	56	FOMIN V M	25
	60	DANILEYKO YU K	58	D'YACHENKO V V	2	FRADKIN E YE	44
		DANILOV O B	14,15	D'YACHKOV A P	36	FRIDMAN S A	50
		DANILYCHEV V A	56	DYATLOV M K	11	F.ITSBERG V YA	53
		DANISHEVSKIY A M	51	DYCHKOV A S	52	FROLOV M P	42
CHADEZH V	59	DASHKOVSKAYA R A	52	DYMSHITS B M	12		
CHAPLIYEV N I	59	DATSEKOVICH I S	14	DYNSHITS YU I	56	G	
CHAPOVSKIY P L	6,10	DAVARASHVILI O I	3	DYNZA V I	53		
CHEBOTAREV N F	41	DAVDOVA M P	25	DYUBKO S F	11		
CHEBOTAREV V P	2,5,9,	DEGTAREV V G	52			GALESKI F	3
	26,52,	DELONE N B	26			GALCHIKIN V T	40
	65	DEMIN A M	13			GAL'PERIN M M	16
CHEKALIN S V	63	DEMSKAYA E L	2	ENTIN M V	52	GALUYEV S V	50
CHEKHONIN S M	49	DENISHCHUK V V	57	EPSHTEYN M I	44	GAPONOV S V	52
CHELNOKOV V YE	51	DENKER B I	4			GARBUZOV D Z	51
CHERESHKOV V V	9	DENUS S	60,61			GARKUSHA V I	45
CHEREZOV V M	11	DERIBAS A A	15			GARSIA M A	31
CHERNO SOV N P	3	DEVYATYKH G G	52			GASIOR B	16
CHERNOV P V	62	DIANOV YE M	29	FABIAN H	22	GAVRILYUK A G	28
CHERNOYARSKIY A A	4,44,	DIANOV-KLOKOV V I	31	FAL'CHENKO V M	56	GAVRILYUK V D	7
	45	DILUNG I I	41	FATEYEV V A	31	GAYGEROVA L S	51
CHERNYSHEV YU A	14	DINKCHYAN K V	10	FAYENOV A YA	60	GAYSENOK V A	5
CHERTOV V G	16,18	DIVIL'KOVSKIY I M	15	FAYNGOL'D M I	26	GELLER YU I	24
CHESKIS S G	42	DMITRIYEV A K	5	FAYNSHTEYN A G	26	GEORGIEV M	34,39
CHESNOKOVA S T	45	DMITRIYEV A D	52	FAYZULLOV F S	59	GERASIMOV B G	18
CHEVOKIN V K	61	DMITRIYEV M V	53	FEDCHUK I U	38	GERASIMOV S A	23
CHEYDO G P	37	DMITRYUK A V	51	FEDOROV V A	2	GERASIMOV V B	23
CHIRKOV V A	15	DOBROVINSKAYA YE P	57	FEDOTOV S I	62	GERKE R R	36,39
CHIZHEVSKIY V N	58	DOLGINOV L M	3	PEKESHGAZI I V	54	GINZBERG A V	55
CHUDINOV V P	60	DOLININA V I	9	FEL'DRUSH V I	53	GLADSKOY V M	52
CHUGUNOV A YU	56	DONIN V I	10	PERCHEV G P	35	GLADUSH G G	7
CHUMAKOV A N	59	DOROFYEVA V B	50	PESENKO L D	11	GLUSHCHENKO N F	2
CHURAKOV V V	13	FRAGANESCU V	8	FEUER T	36	GOGOLASHVILI E B	39
CHURBAKOV A I	45	DROZD I A	3	FIDEL'MAN G N	16	GOGOLEV A V	53
CHURILOV S S	61	DROZDOVA N M	28,29	FIGUROVSKIY YE A	34	GOL'DORT V G	5,52
COMANICIU N	8	DUBIK A	36	FIL' V A	46	GOLOVCHINOV V A	50
				FILATOV P P	44	GOLOVICHEV V I	14

GOLUBEV A N	29	H		K	KABANOV I S	19	KAZAKOV V V	45
GOLUBKOVA M N	33				KACHANOV YU S	48	KAZANTSEV A P	42
GOLUBTSOV A A	22	HAMORI A	35		KACHURIN G A	59	KAZARYAN M A	11
GONCHUKOV S A	13	HEUMANN E	1		KADYGRUB V I	17	KHADZHIMUKHAMEDOV	9,44
GORBAN' I S	52	HIRSCH R	19		KALININ YU A	2	KH KH	53
GORDEYCHIK V T	29				KALINOVSKIY V V	60	KHAIT V M	51
GORDIYETS B F	9	I			KALINTSEV A G	20	KHALFIN V B	6
GORDON G I	55				KALISKI S	60,61	KHANDOKHIN P A	14
GORINA YU I	3	IL'INSKIY YU A	20		KALMYKOV A A	53	KHAPOV YU I	16
GOROT' K F	5	ILYUKHIN A A	15,60		KALYUZHNYA G A	3,4	KHARCHENKO V N	49
GOROVAYA B S	2	IMAS YA A	58		KAMORIN O I	1	KHATYREV N P	4
GORSHKOV B G	58	INOAMOV N A	60		KAMINSKIY A A	50	KHAYKIN N SH	44
GORSHKOV V V	52	INSAROVA N I	20,59		KAMSHILIN A A	38,39	KHAZOV L D	22
GORSKIY S M	17	ISAKOV I M	11		KAMZINA L S	55	KHINRIKUS KH V	30
GORYACHEV L V	60	ISAKOV V A	40		KANAYEV I F	57	KHIZHNYAK A I	37
GOTLIB V I	65	ISAKOV V P	15		KANTOROVICH I I	56	KHLEBNIKOVA G I	34
GRADOV O M	59	ISAYEV A A	11		KAPRALOV V P	6	KHLESKOVA T N	43
GREGORKIEWICZ W	16	ISHCHENKO V N	10		KAPUSTINA O A	24	KHOKHOV V A	45
GRENISHIN A S	14	ISHKHANYAN M N	10		KARAMZIN YU N	24	KHOLIN I V	56
GREYSUKH G I	37	IVANCHENKO A I	7,16		KARAPETIAN M A	10	KHOTKEVICH A V	52
GRIBKOVSKIY V P	3	IVANOV I G	12		KARASEV V B	4	KHULORDAVA T G	40
GRIGOR'YEV F V	60	IVANOV V S	32		KARAVAYEV S M	4	KHVALOVSKIY V V	33
GRIGOR'YEV I S	41	IVANOV N V	38		KARETNIKOVA T I	28	KHYUPPENEN V P	17
GRIN' YU G	24	IVANOVA T G	59		KARLOV N V	10,41	KIDYAROV B I	24
GRISHINA I A	9	IVANUSHKINA L V	60		KARLOV S P	36	KIELESINSKI M	61
GRODZOVSKIY G L	47,64	IVANUSHKINA L V	4		KARMANOV V I	53	KIELICH S	23
GROMOV YU N	43	IVLEV G D	58		KARNYUSHIN V N	12	KIKINESHI A A	35
GRYZINSKI M	61	IZOTOV A N	2		KARPOV L G	15	KIL'PIO A V	4
GUDZENKO L I	26				KARPUSHKO F V	5	KIRILLOV G A	53
GULAMOV SH A	4	J			KARTYSHOV V G	40	KIRIY A YU	59
GUREVICH M YE	56	JACH K			KASHLATY R YE	34	KIRYUKHIN YU I	42
GUREVICH S A	3	JANKIEWICZ Z	61		KASPEROVICH A N	35	KISELEV V A	27
GUROV K P	57	JANOWSKA B	16,61		KAS'YANOV YU S	61	KISELEV V M	14,15
GUR'YANOV A N	29	JAZWINSKI M	37		KATRICH A B	56	KIT M P	3
GUR'YEV V I	14	JERZYKIEWICZ A	8		KATSEV I L	32	KLEPIKOVA N V	37
GUSEV YU L	2	JUNGE K	61		KATULEVSKIY YU A	4	KLEVTISOV P V	3
GUS'KOV L N	6		64		KAVILADZE M SH	53	KLIMOV V D	41
GUTKIN A A	53				KAZAKOV B N	25	KLOCHIKHIN A A	26
GUZHVA V G	17						KLOTIN'SH E E	53

KNYAZEV I N	7	KOROLENKO V G	14	KRSEK J	44	KUZNETSOV S M	2
KOCHUBEY S A	6	KOROLEV V I	4	KRUGLIK G S	27, 48	KUZNETSOV V M	62
KOGAN YA M	4	KOROLIK YE V	59	KRUGLIKOV S V	34	KVASIL B	24
KOLESIK A V	51	KORONKEVICH V P	37	KRUMIN' A E	53	KVIRIYA M S	53
KOLESIK V P	9	KOSHELEV K N	63	KRUZENKOV V N	15	KWASNIOWSKI D	6
KOLESOV G V	43	KOSMOL M	20	KRUZHALOV S V	1		
KOLEV I N	5	KOSTYSHIN M T	37	KRYNETSKIY B B	41	L	
KOLOBRODOV G N	38	KOTELKIN YU D	48	KRYUKOV P G	63		
KOLOMENSKIY AL A	24	KOTLYAR P YE	53	KRYZANOWSKI A	61	I ADYGIN M V	6
KOLOMEYKO E P	29	KOTOV YU A	15	KTITOROV V I	9	LAKOBA I S	26
KOLOMIYSKIY YU R	7	KOTYUK A F	4, 45	KUBICKI J	61	LAKOBA P S	27
KOLOTAYEV N P	46	KOVAL'CHUK B M	7	KUCHERENKO O K	48	LANG J	13
KOLTOK YU V	17, 56	KOVAL'CHUK V L	30	KUDABA V YE	17	LANTEV I D	52
KOMAREVSKIY V A	53	KOVALEV A S	9	KUDINOVA M A	18	LARIKOV L M	56
KOMAROV V A	30	KOVALEV I D	52	KUDRYA V P	27	LARIN N V	52
KOMPANETS I N	33	KOVALEV V I	59, 61	KUDRYAVTSEV N N	12	LATUSH YE L	11
KON A I	31	KOVALEVICH V I	55	KUDRYAVTSEV YE M	13	LATYNIN YU M	17, 56
KONAREV V P	2, 24,	KOVALEVSKIY D V	15	KUDRYAVTSEVA A D	22	LAU A	22
	30	KOVSHAROV N F	10	KUKHTAREV N V	39	LAVROV L M	60
KONDILENKO YE I	22	KOWALSKI A	6	KULAKOV YU A	55	LAVROVSKIY L A	1
KONDRAATENKO A M	37	KOWALSKI S	61	KULESH V P	45, 46,	LAVRUSHKO A G	21
KONDRAT'YEV YU N	2	KOZACHENKO M L	45		47, 48	LAZO V V	28
KONONENKO V K	3, 55	KOZHEVNIKOVA A M	34	KULIKOV S M	53	LEBELEVA L YA	3
KONONOV E YA	61	KOZLOV A P	28	KUNEV S K	34	LEGASOV V A	41
KONONOV V A	17	KOZLOV B M	57	KUNIN L L	55	LENZ K	22
KONONOVA S V	45	KOZLOV V V	48	KUNTSEVICH B F	13	LEONOV A G	11
KONOV V I	59	KOZLOVSKAYA O V	17	KURATEV I I	21	LEONTOVICH A M	19
KONYUKHOV V K	12	KOZULIN A T	53	KURBATOV A A	62	LETOKHOV V S	7, 40,
KOPARANOVA N S	34	KRASNOV M M	28	KURBATOV L N	4		41, 63
KOPICA M	36	KRASYUK I K	58	KURBATOV YU A	7, 8	LETOV D A	30
KOPINETS I F	38	KRATIROV I A	43	KURDYAVTSEVA G P	17	LEVANYUK A P	54
KOPYLOV P M	65	KRAYNIK N N	55	KURDYUMOV S P	63	LEVCHENKO D G	43
KORABLEVA S L	25	KREKOV G M	32	KURZYNSKI Z	61	LEVCHENKO V YA	48
KORDONSKIY KH B	48	KREKOVA M M	32	KUTSAK A A	48	LEVSHUNOV R I	46
KORETSKIY YA P	12	KRINDACH D P	21	KUZ'MENKO V A	41	LIBENSON M N	56, 58
KORMER S B	53, 60	KRISTANSON YA ZH	65	KUZ'MICHEV V M	17, 56	LIKHOLIT N I	22
KORNILICH O N	57	KALVOSHCHENKOV G V	1	KUZMINOV YE G	54	LIPOWIECKI T	43
KORNIYENKO L S	62	KROKHIN O N	59, 62	KUZNETSOV A A	45	LISITSA M P	54
KOROBKIN V V	17	KROPOTKIN M A	48	KUZNETSOV I L	30	LISITSYN V N	6, 10
KOROKHIN L S	17	KROSHKO V N	12	KUZNETSOV O K	28	LIZUNOV V D	49

LOBACHEV V A	58	MAKHVILADZE T M	27	MAYOROV S A	33, 38	MOSKIYENKO M V	11
LOBKO V V	7	MAKIN V S	56	MAYOROV V S	21	MOTKIN V S	17
LOBOV G D	18	MAKIYENKO E V	32	MAZAN'KO I P	6	MOYSA M I	57
LOBOV L I	31	MAKOGON M M	5	MZANKO V F	56	MOZHAROVSKIY A M	19
LOGINOV N A	9	MAKOVKIN A V	29	MAZING M A	61	MOZOL'KOV A S	47, 50
LOGVINSKIY L M	34	MAKSIMOV D YE	49	MZURIN I M	40	MTSKERADZE G SH	33
LOMAKIN V N	30	MAKSIMOV G A	52	MELASHVILI T A	53	MUMINOV R A	4
LOMONOSOV V V	62	MAKSIMOVA G V	4	MELIK-SARKISYAN A A	10	MUMLADZE V V	40
LORINCZ E	13	MAKSIMOVSKIY S N	4	MEL'NIKOV L A	13, 62	MURATOV YE A	8
LOSEV V F	10	MAKUKHA V K	1	MEL'NIKOV N A	22, 23	MURAVITSKIY M A	1
LOSHKAREVA N N	37	MALINOVSKIY V K	57	MEN'SHIKH O F	30	MUSTAFIN K S	37
LUCHIN V I	52	MALYKHINA N M	5	MESYATS G A	7, 8, 10	MYLNKOVA I YE	54
LUGINA A S	20	MAL'SUB YU E	30	MEYERSON A YE	37	MYSHLYAYEV I F	21
LUGOVOY V I	52	MALYSHEV V I	42	MIKABERIDZE A A	39		
LUGOVSKOY V B	56	MALYSHEV V I	18	MIKAEVLYAN A L	2	N	
LUKIN V P	32	MALYUTIN A A	4	MIKALKEVICHYUS M P	54		
LUKISHOVA S G	58	MALYY V I	22	MIKHALEVSKIY V S	11	NAATS I E	32
LUKSHA O V	58	MAMAYEV V L	50	MIKHAYLENKO YU M	48	NABOYKIN YU V	3, 54
LUK'YANOVA A N	30	MAMEDOV SH S	9	MIKHAYLOV V V	59	NALIMOV I P	38
LUNTER S G	19	MANDROSOV V I	38	MIKHAYLOVA G V	55	NALIVAYKO V I	30, 33
LUPANOV V N	24	MANENKOV A A	58	MIKHEYEV L D	14	NAMOT V A	42
LUPKOVICS G	13	MANYLOV V I	7	MIRNOV S A	17	NAPARTOVICH A P	8
LUR'YE A M	51	MARENINIKOV S I	2, 35,	MILINKEVICH A V	25	NASYROV U	54
LUZHAIN V G	29		52	MILOVIDOV V L	44	NATAROVSKIY S N	33
LYAKHOV G A	21	MARGOLIN L VA	60	MINAYEV P V	60	NAUMOV V G	7, 8
LYAMSHEV L M	32	MARKIN YE P	40	MINOGIN V G	41	NAYDENOVA L V	33
LYAPIN A G	40	MARKOV V B	33, 38,	MIRINOVATOV M M	9	NAYMARK S I	34
LYSIKOV V N	28		39	MIRONOV S A	31	NAZARENKO M M	49
LYSOV A B	30	MARKOVA G V	45	MIRONOV V L	31	NAZARYAN A A	10
LYUBCHENKO V V	2	MARKOVA S B	11	MIROSHNIK G A	27	NECHAYEV S YU	18
LYUL'KA V A	27	MASALOV A V	26	MIRTOVA S A	48	NEKRASOV I P	19
		MATCZAK M J	36	MIRZAYEV AG T	9, 44	NESTERIKHIN YU YE	35
		MATIYENKO B G	34	MIRZAYEV AS T	44	NEUSTRUYEV V B	29
		MATSVEYKO A A	15, 16,	MISHIN V A	41	NEVOLIN V M	52
			29	MIT'KIN V M	5	NEZHEVENKO YE S	53
MACIEJEWSKI A	42	MATVEYEV A L	17	MITROFANOVA N V	50	NIDAYEV YE V	59
MAGNITSKIY N A	62	MATVEYEV I N	2, 19,	MIZEROV M N	3	NIKITIN B I	49
MAGNITSKIY S A	62		24, 30	MORGUN YU F	1, 58	NIKITIN YE P	29
MAKARENKO V A	56	MATVIYENKO G G	32	MOROZOVA T P	29	NIKITIN YE YE	13
MAKAROV A I	21	MATYUSHKIN E V	55	MOSKALIK K G	28	NIKOLAYEVA V I	51
MAKAROV YE F	14						



NIKOLOVA L 39  
 NIKOL'SKIY I K 53  
 NOSIK V A 48  
 NOVGOROTSEV A B 18  
 NOVIKOV S S 12  
 NOVIKOV V G 43  
 NOVOSELOV N A 15  
 NOWAK A 61  
 NOWAKOWSKI W 16  
 NOWIKOWSKI J 61  
 NURKOV-MOROZOV YE YE 2  
  
 O  
 ODULOV S G 33,37,  
 38,39  
 OGURTSOVA L A 3,54  
 OL'KHOVSKIY I P 18  
 ONISHCHENKO A M 21  
 OPACHKO I I 10,58  
 ORAYEVSKIY A N 40,42  
 ORISHICH A M 8  
 ORLOV A A 45,46,  
 47,48,  
 57  
 ORLOV P V 49  
 ORLOV V K 23  
 ORLOVSKIY V M 7  
 OSADCHEV L A 31  
 OSADCHUK YA V 29  
 OSELEDCHIK YU S 27  
 OSIKO V V 4  
 OSIPOV V V 7,54  
 OSTAPCHENKO YE P 11  
 OSTAPENKO A M 35  
 OVCHAR V V 36  
 OVECHKIS YU N 38  
 OZERENSKIY A P 31  
  
 P  
 PAK G T 3  
 PAKHOMOV L N 1  
 PAL'CHIKOV YE I 34  
 PANKRATOV A V 42  
 PAPYRIN A N 46  
 PARINOV I D 7  
 PARYS P 61  
 PASHCHENKO V Z 28  
 PASHININ P P 4,58  
 PASHKIN S V 7  
 PASHMANIK G A 36  
 PAVLICHENKO O S 53  
 PAVLIK B D 41  
 PAVLOV P A 45  
 PAVLOV I I 24  
 PAVLOVA I A 17  
 PAVLYUK A A 2  
 PELEKHATYI V M 19,31  
 PEREGUDOV G V 15,60  
 PERETVAT'KO P I 7  
 PERLI B S 57  
 PESTRYAKOV YE V 35,52  
 PETNIKOVA V M 20  
 PETROV M P 38,39  
 PETROV M V 2  
 PETROV N A 49  
 PETROVSKIY V N 13  
 PETRU F 44  
 PETRUN'KIN V YU 1  
 PETUNIN A N 45,46  
 PFEIFFER M 22  
 PIKALEV A S 38  
 PIKUZ S A 60  
 PILIPETSKIY N F 22,23  
 PISAREV R V 54  
 PISKUNKOVA N F 28  
 PIS'MENNYI V D 8  
 PLESHANOV P G 28  
  
 PLOTNIKOV A F 35,37  
 PLYATSKO G V 57  
 PODGAYETSKIY V M 18  
 PODGORNYY A P 3,54  
 POGORELOV A YE 56  
 POGORELSKIY P P 38  
 POKATILOV YE P 25  
 POKROVSKAYA F S 54  
 POLKOVNIKOV B F 25  
 POLOVININ A N 30  
 POLOVINKO V V 31  
 POLUEKTOV I A 20,25  
 POLUNIN G S 29  
 POLYAKOVA I P 49  
 PONOMARENKO A G 7,8,14  
 PONOMAREV YU N 18  
 PONTUS L I 52  
 POP S S 10,58  
 POPOV A K 20,24  
 POPOV L N 43  
 POPOV YU M 25  
 POPOVA T YA 62  
 POPOVICHIEV V I 23  
 PORTNOY YE L 3  
 POYZNER B N 43  
 PRAVILOV A M 15  
 PREOBRAZHENSKIY N G 14,62  
 PRIVALOV V YE 52  
 PROKHOROV A M 4,10,  
 17,18,  
 19,27,  
 31,41  
 PROKHOROVA I T 2  
 PROTAS I M 58  
 PROTAPOV S P 28  
 PROTOPOPOV V V 24  
 PROTSENKO YE D 13  
 PROVOROV A S 9  
 PROZUMENT E B 51  
 PSHENICHNIKOV S M 19  
  
 PSHEZHETSKIY S YA 41  
 PUDKOV S D 56,57  
 PUSTOVALOV V V 59  
 PYATNITSKIY L N 60  
 PYKHAL'SKAYA G V 41  
  
 R  
 RADAUTSAN S I 17  
 RADLOFF W 64  
 RADZYUKEVICH V P 34  
 RAGOZIN YE N 15,60  
 RAGUL'SKIY V V 23  
 RAKHIMOV A T 8,9  
 RAPOPORT B I 30  
 RASPOPOV N A 44  
 RATNIKOV S I 30  
 RAZHEV A M 10  
 RAZUMOV L N 36  
 RAZUMOVA T K 54  
 REMESNIK V G 31,37  
 RINKEVICHYUS B S 49  
 RIVLIN L A 26  
 RODE A V 62  
 RODIONOV A N 37  
 ROLDUGIN V I 12  
 ROMANENKO P F 37  
 ROMANENKO V I 40  
 ROMANOV YU F 38  
 ROTSHTEYN M YE 34  
 ROYTBURG V S 25  
 ROZHANSKIY I M 18  
 ROZOV B S 50  
 RUBIN A B 28  
 RUBIN L B 28  
 RUBININA N M 21  
 RUBINOV A N 41  
 RUDNEVSKIY N K 49  
 RUDNITSKIY A L 48  
 RUPASOV A A 59

RUSETSKIY A N	22	SEDOV L V	32	SHIKANOV A S	1,59,	SLIVKA L K	18
RUSINOWICZ T	61	SELEZNEV V A	37	SHIROKIKH A P	62	SMIRNOV G I	21
RYABCHENKO V E	34	SELEZNEV V N	35,37	SHISHAYEV A V	14	SMIRNOV V L	29
RYABCHIKOVA V P	49	SEL'MAN V M	3	SHKLYAYEVA I S	19	SMIRNOV V N	58
RYABCHUN A M	39	SEM M F	12	SHLYAPNIKOV I V	49	SMIRNOV V V	41
RYABOV YE A	7	SEMAK D G	35	SHMAL'KO A V	49	SMIRNOV YE A	9
RYABOVA R V	40	SEMENCHINSKIY S G	54	SHMAREV YE K	29	SMIRNY V V	31
RYABOV A YA	55	SEMOV G B	39	SHOSHEVA M	39	SMOLENSKIY G A	31,55
RYABTSEV A N	61	SEMOV V I	24	SHOTOV A P	39	SOBOLEV N N	13
RYABTSEV G I	3	SEMIETOV S A	31	SHTAN'KO A YE	3	SOKOLOV V A	44
RYADCHIKOV V YE	48	SEMIKHIN I A	17	SHTEMENKO L S	40,50	SOKOLOVA L B	30
RYBAKOV B V	49	SEREBRYAKOV G S	49	SHTYEN M S	49	SOKOLOVSKAYA A I	22
RYBALTOVSKIY A O	62	SERGEYEV A B	16	SHUMIKHRAS L	46	SOLOGUB V P	6
		SERIKOV R I	12	SHUVALOV L A	33	SOLOMAKHA D A	55
		SHABANOV V F	19,55	SHUVALOV S M	55	SOLOUKHIN R I	7,8,9,
		SHABARSHIN V M	42	SHVARTS K K	60		12,14,
SACHKOV K N	49	SHAKIROV A KH	38		48,54,		16,44,
SADOWSKI M	61	SHALAYEV V I	47,50		65		46,65
SAFRONOV V A	2	SHALDIN YU V	54	SIDORIN A V	58	SOLOV'YEV A P	23
SAFRONOVA U I	60	SHALLYGINA T A	31	SIDOROV YU S	17	SONIN A S	44
SAKHAROV I M	35	SHANDYBINA G D	58	SILAYEVA N B	3	SOPINA N P	19
SALIVON G I	52	SHARKOV B YU	60	SILENOK A S	59	SOROKA S I	30
SAL'KOVA YE N	38	SHARKOV V F	12	SILIN V P	59	SOROKIN A R	6
SALYADINOV V S	58	SHARLAY S F	4	SIL'NOV S M	60	SOROKIN A V	55
SAMOKHIN A A	57	SHASHKOV V M	8	SINEL'NIKOV S P	2	SOSKIN M S	18,37,
SAMOKHVALOV A A	37	SHATALIN I D	40	SINEL'SHCHIKOV V A	9		38,39
SAMOKHVALOV B V	49	SHAYTANOV S P	19	SINITSYN G A	2	SOTSKIY B A	26
SAMOYLOV M S	2	SHAYTSAN YA F	48	SINITSYN G V	5	SPASIN S B	11
SAMSON A M	25	SHCHAVELEV O S	5	SINITSYN I G	27	SPIRIDONOV V V	15
SAPRYKIN E G	21	SHCHELEV M YA	17,18	SINITSYNA Z A	42	STARIK A I	12
SARKISOV O M	42	SHCHERBACHENKO A M	37	SINIY I G	54	STARINSKIY V N	10
SARKISOV S E	2	SHCHERBAKOV I A	4	SNACHKOV A N	42	STAROBOGATOV I O	54
SARZHEVSKIY A M	5	SHCHERBAKOV YE A	19,31	SKLIZKOV G V	1,59,	STARODUBTSEV E V	38
SAVCHENKO A N	44	SHELEPIN L A	12,27	SKLYAROV O K	62	STARODUBTSEV N F	40
SAVEL'YEV A D	41	SHELOPUT D V	24	SKOROBOGATOV B S	55	STARTSEV A V	14
SAVEL'YEV V I	50	SHEVCHUK B A	53	SKRINSKIY A N	57	STASEL'KO D I	40
SAVIN V V	7,10	SHEVELEVA T YU	48	SKULACHENKO S S	37	STEFANOVICH S YU	22
SAVOSTIN P I	50	SHEVELEVICH R S	2	SKVORTSOV M N	49	STEJSKAL A	44
SAVA V A	25	SHEVEL'KO A P	61	SLESAREV M V	5	STEPANOV A I	4
SEDOV B M	4	SHIBAYEV I N	44		43	STEPANOV B I	47

STEPANOV B M	17, 43	I A L ' R O Z E V L	14	TRUBETSKOY YU V	30	VASIL' TSOV V V	11
STEPANOV S I	44, 45	TARANENKO V B	18	TSAREV P P	2	VASIL' YEV B A	50
STEPANOV V A	38, 39	LARSENKO V F	10	TSARFIN V YA	50	VASIL' YEV G K	14
STEPANOV YU YU	9	TARASHCHENKO D I	36	TSIBULYA A B	16, 18	VASIL' YEVA A N	9
STINSER YE P	7	TARASOV V M	1	TSIKIN B G	23	VASIL' YEVA I A	9
STOLOV A L	31	TARTAKOVSKIY I I	21	TSKHADADZE Z S	39	VASIL' YEVA N A	17
STOLYAROV S N	25	TEKAYEV E B	39	TSUKERMAN V G	31, 34	" S ' K O V S T	35
STRIZHEVSKIY V L	26	TELAGIN A YU	43	TSVETKOV M YU	1	VEDENOV A A	7
STUEHMER G	22	TELITSYN N A	34	TSVETKOVA K B	34	VENEDIKOV A	32
STURMAN B I	19	TEN V P	3	TUCHIN V V	13, 62	VENEVTSSEV YU N	22
SUBBOTIN L K	57	TER-POGOSYAN A S	6	TUMKEVICHYUS K K	54	VENGLYUK V I	4
SUCHKOV A F	15	TER-POGOSYAN P A	6	TUPENEVICH P A	55	VENITSKIY V N	55
SUCHKOV A I	9	TIKHOMIROV S V	4	TURKEVICH YU G	45	VESEL' YEV V M	49
SUKHANOV I I	52	TIKHONCHUK V T	59	TURYANITS A I I	35	VIGASIN A A	57
SUKHANOV V B	15	TIKHONOV B A	16	TUR'YANSKIY A G	3	VILESOV F I	15
SUKHAREV S A	5	TIKHONOV YE A	5	TYCHINA I I	52	VINETSKIY V L	39
SUKHAREVA L K	53	TIMOFEYEV V P	20	U		VINOGRADOV G K	50
SUKHORUKOV A P	22	TIMOFEYEV YU P	50	UDARTSEV A M	42	VINOGRADOV YE A	50
SURDUTOVICH G I	24	TISHCHENKO V N	8	ULYAROV P I	57	VINOGRADOVA A A	21
SUSLOV A I	42	TKACHENKO L P	45	UMAROV G YA	9, 44	VITKOVSKIY V V	45
SUYAZOV N V	60	TODIRASHKU S S	26	URIN B M	9	VITSHAS A F	7
SUYNOV V KH	21	TODOROV T A	39	USACHEV B F	43	VODOVATOV I A	40, 50
SVE TLICHNYY I B	34	TOKARCHUK D N	35	USHANOV V ZH	42	VOLK T R	55
SVIRIDENKOV E A	12	TOLKACHEV A V	49	USPENSKIY A B	42	VOLKOV A YU	L#
SYCHEV A A	42, 44	TOLMACHEV A I	18	USPENSKIY A V	57	VOLKOV I V	50
SYMERA T P	18	TOLMACHEV G N	11	UUSMAA P A	65	VOLODINA V I	23, 36
SYRBU N N	30	TOMASHCHIK A K	43	V	30	VOLOSOF V D	17
SYSUN V V	17	TORGOMYAN G B	10	VAKHMYANIN K P	4	VOLYNKIN V M	20
SYUVALA R YA	12	TOROPOV A K	55	VALASHOV I F	2	VOROB' YEV N S	4
SZYDLAK J	30	TOTSKHALISHVILI N V	39	VANIKOV A V	42	VORONTSOV S S	50
SZYDLOWSKA J	61	TREPAKOV V A	55	VARDOSANIDZE Z V	39	VORON' KO YU K	44
	37	TRET'YAKOV V M	34	VARIKASH V M	55	VOROZHEYKINA L F	51
		TRIEBEL W	1	VARNAVSKIY O P	19	VORZOBova N D	5
		TRIFONOV YE D	27	VASHCHUK V I	5	VOYTOVICH A P	20
TABRIN V N	2	TROFIMOV N P	15	VASILENKO L S	5, 52	VUKOVICH S	59
TACHKOV A N	65	TROITSKIY YU V	15				
TAKLAYA A A	33	TROSHIN B I	6				
TALANOV V I	21	TROSHKIN S B	17				

VYDRIN L V	35	VERMAKOVA A N	51	ZHBANKOV R G	59
VYGODIN V A	27	YEROKHOVETS V K	35	ZHELNOV B L	42
VYSKUB V G	50	YERSHOV V S	45	ZHERIKHIN A N	63
VYSOTSKIY M G	50	YERSHOVA T A	47	ZHGUN S A	18
		YESEPKINA N A	50	ZHUKOV V V	12
W		YEVSTRATOV N A	31	ZIANGIROVA G G	29
WAWER J	61	YEVTUKHOVICH P G	41	ZIMIN YU S	7
WEIGMANN H J	22	YUDIN I I	49	ZINOV'YEV A V	56
WOJTCZAK J	42	YUDINA L P	34	ZINOV'YEV P V	3
WOLEJKO L	23	YUNDEV D M	11	ZIUZIA J	36
WOLINSKI W	6	YUNOVICH A E	3	ZMITRENKO N V	63
WOLOWSKI J	60, 61	YURSHIN B YA	19	ZOLOTOV YE M	19, 31
WOLSKI J	61	YUSHIN A S	29	ZOREV N N	1
		YUTSIS G A	54	ZOSIMOV A V	46
Y				ZUBKOVA V S	19
YACHNEV I L	14	Z		ZUBOV V A	40
YAKOBI YU A	7, 16,	ZABELLO YE I	5	ZUYEV B K	55
	44	ZABELYSHENSKIY V I	50	ZUYEV V S	14
YAKOVLEV G S	20	ZAGORSKIY YA T	45	ZUYEV V YE	32
YAKOVLEV V A	4	ZAGULOV F YA	10	ZVEREV G M	21
YAKOVLEV YE B	58	ZAKHARCHENKO V M	47, 50	ZVEREV V A	17
YANKOV V P	50	ZAKHARENKO YU G	45	ZVORYKIN V D	56
YANKOVSKIY A A	51	ZAKHARENKO YU A	62		
YANSON I K	52	ZAKHAROV V M	36		
YARMOSH N A	35	ZAKHAROV V P	58		
YASHKIR YU N	22	ZAMKOV A V	19		
YASHUMOV I V	3	ZAPESOCHEV I P	58		
YEFREMOV N M	16	ZAPOROZHCHENKO R G	25		
YEGOROV A A	7	ZAPOROZHCHENKO V A	25		
YEGOROV V N	17	ZARETSKIY D F	62		
YEGOROVA T K	43	ZASAVITSKIY I I	3		
YELISEYEV P G	3	ZAYCHENKO O V	30		
YEMEL'YANOVA I V	45	ZAYTSEV A I	27		
YEPIFANOV A S	58	ZAYTSEV G F	1		
YEFIKHIN V N	13	ZAYTSEV YU I	6		
YEREMENKO V V	55	ZBEZHNEVA S G	17		
YEREMIN V I	31	ZDANOVICH S B	25		
YERMACHENKO V M	13	ZEGE E P	32		
		L'DOVICH B YA	22, 23		

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